

Response Under 37 CFR 1.116

Expedited Procedure

Examining Group 1700

Application No. 10/502,504

Response to Office Action dated July 20, 2006

Paper dated October 20, 2006

Attorney Docket No. 0470-044735

REMARKS

Claims 11-15 and 17-21 are pending in this application. In view of the following remarks, Applicants believe that the asserted rejections should be withdrawn and that all pending claims 11-15 and 17-21 are in condition for allowance.

Claims 11-15 and 17-21 stand rejected under 35 U.S.C. § 103(a) for asserted obviousness over Romack et al. (U.S. Patent No. 6,200,352) in view of the Octadecylamine document for the reasons set forth in the previous Office Action.

Applicants respectfully traverse these rejections and request that the rejections be reconsidered and withdrawn.

The claimed invention is directed to a method of dry cleaning an article, such as fabric, comprised of contacting the article with a fluid dry cleaning composition containing densified carbon dioxide at a temperature between -20 and 60°C and a pressure between 1 and 100 MPa, so as to allow stains to dissolve and/or to disperse into the fluid dry cleaning composition, and then separating the article and the fluid dry cleaning composition, in which the fluid dry cleaning composition is comprised of an ionic surfactant in a concentration of between 0.01 and 15% by weight of the carbon dioxide and where at least 10% of the ionic surfactant is present in an undissolved solid form. The ionic surfactant is comprised of the formula recited in independent claim 11.

In contrast to the claimed invention, Romack et al. disclose dry cleaning compositions in which the surfactant is completely dissolved. In particular, Romack et al. disclose a dry cleaning composition which contains an organic co-solvent. As is clear from the

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discussion of the prior art, especially at column 1, lines 34-45, Romack et al. are concerned with providing a dry cleaning system using liquid carbon dioxide that employs conventional surfactants which do not contain a CO₂-philic group. In column 2, lines 5-10, Romack et al. disclose a preferred embodiment in which the surfactant employed does not contain a CO₂-philic group, stating that “an advantage of the present invention is that, by proper use of the co-solvent, conventional surfactants may be employed in a liquid carbon dioxide dry cleaning system” (emphasis added).

Thus, Romack et al. disclose a method that utilizes conventional surfactants that do not contain a CO₂-philic group, i.e., that exhibit poor solubility in CO₂, and thus the use of a co-solvent is employed to provide optimum solubility to conventional surfactants. This is further disclosed by the statement at page 5, lines 51-59, “Thus, the present invention may be carried out using conventional surfactants, including but not limited to the anionic or nonionic alkylbenzene sulfonates, ethoxylated alkylphenols and ethoxylated fatty alcohols...that are not soluble in liquid carbon dioxide and which could not be utilized in the inventions described in ...”

Therefore, the teaching of Romack et al. is the use of a co-solvent to dissolve conventional surfactants which typically would not dissolve in carbon dioxide; see column 2, lines 2-3, where it is stated “The surfactant is soluble in the co-solvent.”

Furthermore, Romack et al. provide several examples that clearly illustrate their dry cleaning system that contains a surfactant which is insoluble in carbon dioxide but which is completely dissolved in the dry cleaning composition with the use of an organic co-solvent. In particular, Example 9 describes a dry cleaning composition containing 0.7% of

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dioctylsulfosuccinate. This particular surfactant essentially is insoluble in carbon dioxide, but is highly soluble in 4% of the co-solvent (ISOPAR MTM) that is used in the dry cleaning composition disclosed in the example. Consequently, the dry cleaning composition disclosed in Example 9 does not contain undissolved surfactant. Similarly, Example 8 describes a dry cleaning composition containing 0.6% PLURONIC L31TM, which is a surfactant that also is essentially insoluble in carbon dioxide. Again, this example describes a dry cleaning composition containing an organic co-solvent that is used to ensure that the surfactant is completely dissolved.

Indeed, Applicants submit that Romack et al. actually teach away from the claimed invention. Both the method of the claimed invention and the method disclosed in Romack et al. use surfactants which essentially are insoluble in carbon dioxide. However, whereas Romack et al. specifically teach the use of an organic co-solvent to ensure that CO₂-insoluble surfactants can be used by solubilizing them in a co-solvent, the claimed invention provides the unexpected finding that excellent cleaning results are achieved if a substantial fraction of the surfactant is present in the dry cleaning composition in a non-dissolved form.

Therefore, because Romack et al. explicitly teach measures to ensure that their surfactants are completely dissolved, it cannot be obvious from Romack et al. to employ a dry cleaning composition which contains undissolved surfactant. Applicants submit, therefore, that Romack et al., either alone or in combination with the Octadecylamine document, do not teach or suggest the claimed invention as hereinabove described.

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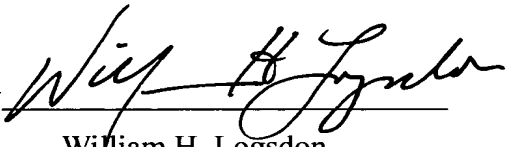
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In view of the foregoing remarks, it is respectfully submitted that all pending claims 11-15 and 17-21 in the present application are distinguishable from the cited prior art. Accordingly, reconsideration and withdrawal of the rejection and an early Notice of Allowance are respectfully requested.

Respectfully submitted,

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